

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room 524  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 27 October 2000 (27.10.00)	
<b>International application No.</b> PCT/GB00/00621	<b>Applicant's or agent's file reference</b> WO104WO
<b>International filing date</b> (day/month/year) 22 February 2000 (22.02.00)	<b>Priority date</b> (day/month/year) 03 March 1999 (03.03.99)
<b>Applicant</b> KERR, Peter, Douglas et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

02 October 2000 (02.10.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Juan Cruz  Telephone No.: (41-22) 338.83.38
---	---

# PATENT COOPERATION TREATY

RECEIVED 12 APR 2001

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Smith, Debra J. C.  
CARNAUDMETALBOX PLC  
Downsview Road  
Wantage  
Oxfordshire OX12 9BP  
GRANDE BRETAGNE

PCT

no thank you

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing  
(day/month/year)

09.04.2001

Applicant's or agent's file reference  
WO104WO

## IMPORTANT NOTIFICATION

International application No.  
PCT/GB00/00621

International filing date (day/month/year)  
22/02/2000

Priority date (day/month/year)  
03/03/1999

Applicant

CROWN CORK & SEAL TECHNOLOGIES CORPORATION

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

 European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer

Berger, K

Tel.+49 89 2399-2576



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>WO104WO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/GB00/00621</b>	International filing date (day/month/year) <b>22/02/2000</b>	Priority date (day/month/year) <b>03/03/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>B65D41/04</b>		
Applicant <b>CROWN CORK &amp; SEAL TECHNOLOGIES CORPORATION</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  <b>02/10/2000</b>	Date of completion of this report  <b>09.04.2001</b>
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office</b> <b>D-80298 Munich</b> <b>Tel. +49 89 2399 - 0 Tx: 523656 epmu d</b> <b>Fax: +49 89 2399 - 4465</b>	Authorized officer  <b>Lendfers, P</b>  Telephone No. <b>+49 89 2399 2933</b> 

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00621

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

3,5-15	as originally filed	
1,2,2a,4	with telefax of	01/03/2001

### Claims, No.:

1-6	with telefax of	01/03/2001
-----	-----------------	------------

### Drawings, sheets:

1/4-4/4	as originally filed
---------	---------------------

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00621

- ☐ the description,      pages:
- ☐ the claims,          Nos.:
- ☐ the drawings,        sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-6
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-6
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-6
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/GB00/00621

Section V:

The invention relates to a closure comprising a closure shell and a liner adapted to seal the mouth of a container, the liner having a sealing flange, arranged to overlie the container mouth, the sealing flange having an upstanding rim around its periphery.

The invention further relates to an in-bore device for a container, having a body portion at least part of which is adapted to be held firmly in the neck of a container, and a liner portion, arranged to be held captive in a closure and to co-operate releasably with the body portion, the liner portion having a sealing flange, arranged to overlie the container mouth, the sealing flange having an upstanding rim around its periphery.

Such a closure and an in-bore device are known from document FR-A-1 378 262, being the closest prior art document.

According to the invention as defined in claim 1, when the closure is applied on the container, the upstanding rim folds towards the sealing flange, without folding completely flat, thereby constituting a biasing means for biasing the periphery of the sealing flange against the outside edge of the container mouth.

According to the invention as defined in claim 6, when the closure and the in-bore device are applied on the container, the upstanding rim folds towards the sealing flange, without folding completely flat, thereby constituting a biasing means for biasing the periphery of the sealing flange against the outside edge of the container mouth.

Document FR-A-1 378 262 discloses a plastic disc for use in conjunction with a metal crown. The plastic disc has a projecting annular wall of approximately the same diameter as the internal diameter of a bottle neck and a peripheral lip perpendicular to the disc. As the metal crown is applied to the bottle the lip deforms and seals around the outside of the bottle neck and the annular wall seals against the inside.

Therefore, the combination of the features of each of the independent claims 1 and 6 is neither known from, nor rendered obvious by, the available prior art. Consequently, the subject-matter of independent claims 1 and 6 is new and inventive (Articles 33(2) and 33(3) PCT). The subject-matter of dependent claims 2 to 5 fulfils as well the

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/GB00/00621

requirements of novelty and inventive step. Furthermore, claims 1 to 6 are considered as susceptible of industrial application.

**Section VIII:**

The features in the characterizing portion each of independent apparatus-claims 1 and 6 relate to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from these claims, contrary to the requirements of Article 6 PCT.

09/914473

518 Rec'd PCT/PTO 29 AUG 2001

W0104W01

1

CLOSURE SEALING WAD

This invention relates to an improved sealing wad or liner for use in closure caps. The invention is particularly suitable for use with ROPP (Roll-On Pilfer Proof) closures and in conjunction with pourers or non-refilling devices fitted inside the bore of a container neck.

A sealing wad or liner is often used in association with known closures. Generally, such closures have a planar crown, to cover the container mouth, and a tubular skirt which depends from the periphery of the crown and is adapted to locate on the outside of the container by, for example, threaded engagement. A sealing wad or liner is received adjacent to the closure crown to provide a seal around the mouth of the container.

For example, FR1378262 describes a plastic disc for use in conjunction with a metal crown. The plastic disc has a projecting annular wall of approximately the same diameter as the internal diameter of a bottle neck and a peripheral lip perpendicular to the disc. As the metal crown is applied to the bottle the lip deforms and seals around the outside of the bottle neck and the annular wall seals against the inside.

In an ROPP closure, a capsule made of thin metal is removably attached to the container. The capsule is fitted in position on the container neck and thread formations are rolled into the capsule skirt, conforming automatically to the underlying threads on the container neck to provided the necessary threaded engagement between the two. At the same time as the thread is formed, the free edge of the skirt is usually rolled

AMENDED SHEET



inwardly under an annular shoulder on the container. This, in combination with a line of weakening provided around the periphery of the skirt, forms a tamper evident or security band. When the closure is unscrewed for the first time, this band separates from the remainder of the closure along the line of weakening, thereby providing visual evidence that an attempt has been made to open the container.

A waxed, cardboard sealing wad is usually provided in conventional ROPP closures. The sealing wad is retained in the capsule by means of an annular retaining bead formed around the periphery of the closure skirt, adjacent to the crown. When the container is capped, the mouth of the container locally deforms the cardboard sealing wad, to provide a seal. However, cardboard sealing wads are not always suitable, particularly when the container is provided with a device that is designed to be substantially or wholly received in the neck of the container; hereinafter referred to as "in-bore" devices. Such devices include, for example, pourers and non-refilling devices for insertion in containers of fine spirits.

Accordingly the present invention provides a closure comprising a closure shell and a liner adapted to seal the mouth of a container, the liner having a sealing flange, arranged to overlies the container mouth, the sealing flange having an upstanding rim around its periphery, characterised in that on application of the closure on the container the upstanding rim folds towards the sealing flange, without folding completely flat, thereby constituting a biasing means for biasing the

2A

periphery of the sealing flange against the outside edge of the container mouth.

In particular, the invention provides a means of improving the seal between a closure and a container  
5 fitted with an in-bore device, such as a non-refilling device.

for delivery to the filling line, relatively cheap and easy to mould and easy to assemble, but should seal the container opening as well as a closure containing a conventional cardboard wad.

- 5       Accordingly, the present invention also provides an in-bore device for a container having a body portion, at least part of which is adapted to be held firmly in the neck of a container, and a liner portion, arranged to be held captive in a closure and to co-operate releasably
- 10       with the body portion, the liner portion having a sealing flange, arranged to overlies the container mouth, the sealing flange having an upstanding rim around its periphery, characterised in that on application of the closure and in-bore device to the container the
- 15       upstanding rim folds towards the sealing flange, without folding completely flat, thereby constituting a biasing means for biasing the periphery of the sealing flange against the outside edge of the container mouth.

- 20       The liner according to the invention is preferably made of a plastics material. When used in conjunction with an in-bore device, the liner is provided with means for releasable engagement with the body portion of the in-bore device. This releasable connection may be provided, for example, by a snap fit arrangement or by
- 25       frangible bridges, which break on first opening of the container. The in-bore device and liner may be inserted into the closure cap and the resultant integrated unit provided to the bottling line for insertion into the neck of a container.

CLAIMS

1. A closure comprising a closure shell (2A) and a liner (6) adapted to seal the mouth of a container, the liner (6) having a sealing flange (31), arranged to overlies the container mouth, the sealing flange (31) having an upstanding rim (40) around its periphery, characterised in that on application of the closure on the container the upstanding rim (40) folds towards the sealing flange (31), without folding completely flat, thereby constituting a biasing means for biasing the periphery of the sealing flange against the outside edge (12) of the container mouth.
2. A closure according to claim 1, wherein the upstanding rim (40) is adapted to prevent itself folding completely flat.
3. A closure according to claim 1 or claim 2, wherein the sealing flange further comprises a spacer (42), arranged between the opposed surfaces of the sealing flange (31) and the closure, the spacer (42) arranged to prevent the upstanding rim (40) from folding completely flat.
4. A closure according to claim 3, wherein the spacer (42) is adapted to provide a recess into which the upstanding rim can fold.

5. A closure according to any one of the preceding claims, wherein the upstanding rim (40) is arranged substantially parallel to the central axis of the closure and the sealing flange (31) is arranged at an acute angle to the upstanding rim (40), so that the sealing flange (31) cams the upstanding rim (40) inwardly as it contacts the neck (1) of the container.

6. An in-bore device for a container, having a body portion (20) at least part of which is adapted to be held firmly in the neck (1) of a container, and a liner portion (30), arranged to be held captive in a closure (2A) and to co-operate releasably with the body portion (20),

the liner portion (30) having a sealing flange (31), arranged to overlies the container mouth,

the sealing flange (31) having an upstanding rim (40) around its periphery,

characterised in that

on application of the closure (2A) and in-bore device (20) to the container the upstanding rim (40) folds towards the sealing flange (31), without folding completely flat, thereby constituting a biasing means for biasing the periphery of the sealing flange (31) against the outside edge (12) of the container mouth.

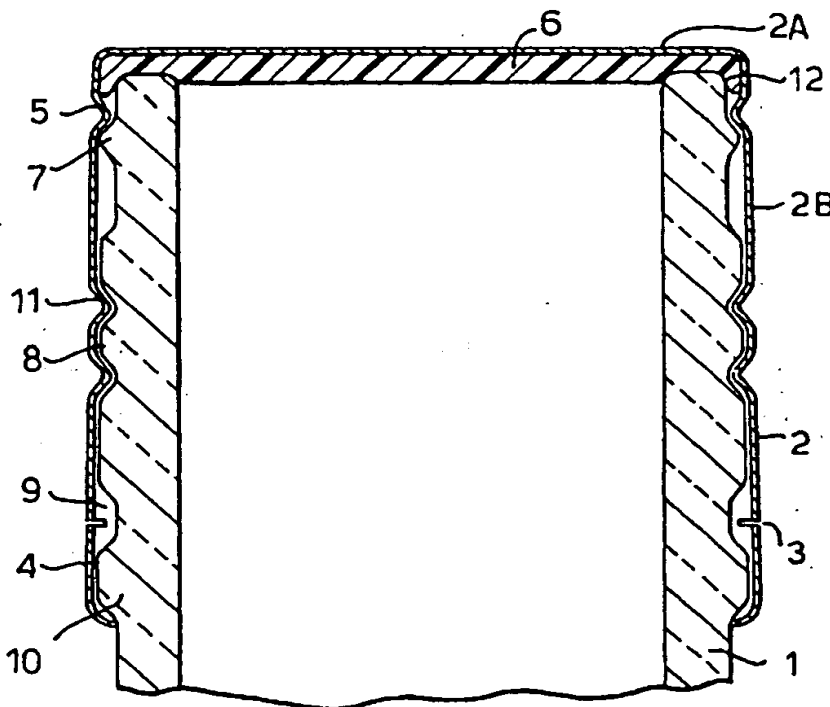
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>B65D 41/04</b>	<b>A1</b>	(11) International Publication Number: <b>WO 00/51904</b> (43) International Publication Date: 8 September 2000 (08.09.00)
<p>(21) International Application Number: PCT/GB00/00621</p> <p>(22) International Filing Date: 22 February 2000 (22.02.00)</p> <p>(30) Priority Data: 9904760.7 3 March 1999 (03.03.99) GB</p> <p>(71) Applicant (for all designated States except LS US): CROWN CORK &amp; SEAL TECHNOLOGIES CORPORATION [US/US]; 11535 S. Central Avenue, Alsip, IL 60803-2599 (US).</p> <p>(71) Applicant (for LS only): CARNAUDMETALBOX PLC [GB/GB]; Downsview Road, Wantage, Oxfordshire OX12 9BP (GB).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): <u>KERR</u>, Peter, Douglas [GB/GB]; 18 Norwood Crescent, Alloa FK10 2BU (GB). <u>SENIOR</u>, David [GB/GB]; 38 Argyle Terrace, Dunblane, Perthshire FK15 9DN (GB). <u>FERRY</u>, Andrew [GB/GB]; Wallace Street, Bannockburn, Stirlingshire FK7 8JQ (GB).</p> <p>(74) Agent: SMITH, Debra, Jane, Clare; Carnaudmetalbox plc, Downsview Road, Wantage, Oxfordshire OX12 9BP (GB).</p>	<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p>	

(54) Title: CLOSURE SEALING WAD

## (57) Abstract

A closure (2) having a sealing wad or liner (6), which is particularly suitable for use in conjunction with in-bore devices. The liner comprises a sealing flange, which overlies the rim (12) of the container mouth and has an upstanding rim (48) around its periphery. The upstanding rim (48) is arranged to fold towards the sealing flange on application of the closure to a container, providing a spring bias to force the periphery of the sealing flange against the outside edge of the container mouth.



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

REPLACED BY  
PART 34 AMETCLOSURE SEALING WAD

This invention relates to an improved sealing wad or liner for use in closure caps. The invention is particularly suitable for use with ROPP (Roll-On Pilfer Proof) closures and in conjunction with pourers or non-refilling devices fitted inside the bore of a container neck.

A sealing wad or liner is often used in association with known closures. Generally, such closures have a planar crown, to cover the container mouth, and a tubular skirt which depends from the periphery of the crown and is adapted to locate on the outside of the container by, for example, threaded engagement. A sealing wad or liner is received adjacent to the closure crown to provide a seal around the mouth of the container.

In an ROPP closure, a capsule made of thin metal is removably attached to the container. The capsule is fitted in position on the container neck and thread formations are rolled into the capsule skirt, conforming automatically to the underlying threads on the container neck to provide the necessary threaded engagement between the two. At the same time as the thread is formed, the free edge of the skirt is usually rolled inwardly under an annular shoulder on the container. This, in combination with a line of weakening provided around the periphery of the skirt, forms a tamper evident or security band. When the closure is unscrewed for the first time, this band separates from the remainder of the closure along the line of weakening, thereby providing



visual evidence that an attempt has been made to open the container.

A waxed, cardboard sealing wad is usually provided in conventional ROPP closures. The sealing wad is  
5 retained in the capsule by means of an annular retaining bead formed around the periphery of the closure skirt, adjacent to the crown. When the container is capped, the mouth of the container locally deforms the cardboard sealing wad, to provide a seal. However, cardboard  
10 sealing wads are not always suitable, particularly when the container is provided with a device that is designed to be substantially or wholly received in the neck of the container; hereinafter referred to as "in-bore" devices. Such devices include, for example, pourers and non-  
15 refilling devices for insertion in containers of fine spirits.

Accordingly the present invention provides a closure comprising a closure shell and a liner adapted to seal the mouth of a container, the liner having a sealing  
20 flange, arranged to overlies the container mouth, the sealing flange having an upstanding rim around its periphery, characterised in that on application of the closure on the container the upstanding rim folds towards - the sealing flange, without folding completely flat,  
25 thereby biasing the periphery of the sealing flange against the outside edge of the container mouth.

In particular, the invention provides a means of improving the seal between a closure and a container fitted with an in-bore device, such as a non-refilling  
30 device.

for delivery to the filling line, relatively cheap and easy to mould and easy to assemble, but should seal the container opening as well as a closure containing a conventional cardboard wad.

5       Accordingly, the present invention also provides an in-bore device for a container having a body portion, at least part of which is adapted to be held firmly in the neck of a container, and a liner portion, arranged to be held captive in a closure and to co-operate releasably  
10 with the body portion, the liner portion having a sealing flange, arranged to overlies the container mouth, the sealing flange having an upstanding rim around its periphery, characterised in that on application of the closure and in-bore device to the container the  
15 upstanding rim folds towards the sealing flange, without folding completely flat, thereby biasing the periphery of the sealing flange against the outside edge of the container mouth.

The liner according to the invention is preferably  
20 made of a plastics material. When used in conjunction with an in-bore device, the liner is provided with means for releasable engagement with the body portion of the in-bore device. This releasable connection may be provided, for example, by a snap fit arrangement or by  
25 frangible bridges, which break on first opening of the container. The in-bore device and liner may be inserted into the closure cap and the resultant integrated unit provided to the bottling line for insertion into the neck of a container.

**CLAIMS**

1. A closure comprising a closure shell and a liner adapted to seal the mouth of a container, the liner having a sealing flange, arranged to overlies the container mouth, the sealing flange having an upstanding rim around its periphery characterised in that on application of the closure on the container the upstanding rim folds towards the sealing flange, without folding completely flat, thereby biasing the periphery of the sealing flange against the outside edge of the container mouth.
2. A closure according to claim 1, wherein the upstanding rim is adapted to prevent itself folding completely flat.
3. A closure according to claim 1 or claim 2, wherein the sealing flange further comprises a spacer, arranged between the opposed surfaces of the sealing flange and the closure, the spacer arranged to prevent the upstanding rim from folding completely flat.
4. A closure according to claim 3, wherein the spacer is adapted to provide a recess into which the upstanding rim can fold.

5. A closure according to any one of the preceding claims, wherein the upstanding rim is arranged substantially parallel to the central axis of the closure and the sealing flange is arranged at an acute angle to the upstanding rim, so that the sealing flange cams the upstanding rim inwardly as it contacts the neck of the container.

6. An in-bore device for a container, having a body portion at least part of which is adapted to be held firmly in the neck of a container, and a liner portion, arranged to be held captive in a closure and to cooperate releasably with the body portion, the liner portion having a sealing flange, arranged to overlie the container mouth, the sealing flange having an upstanding rim around its periphery characterised in that on application of the closure and in-bore device to the container the upstanding rim folds towards the sealing flange, without folding completely flat, thereby biasing the periphery of the sealing flange against the outside edge of the container mouth.

Fig.1. PRIOR ART.

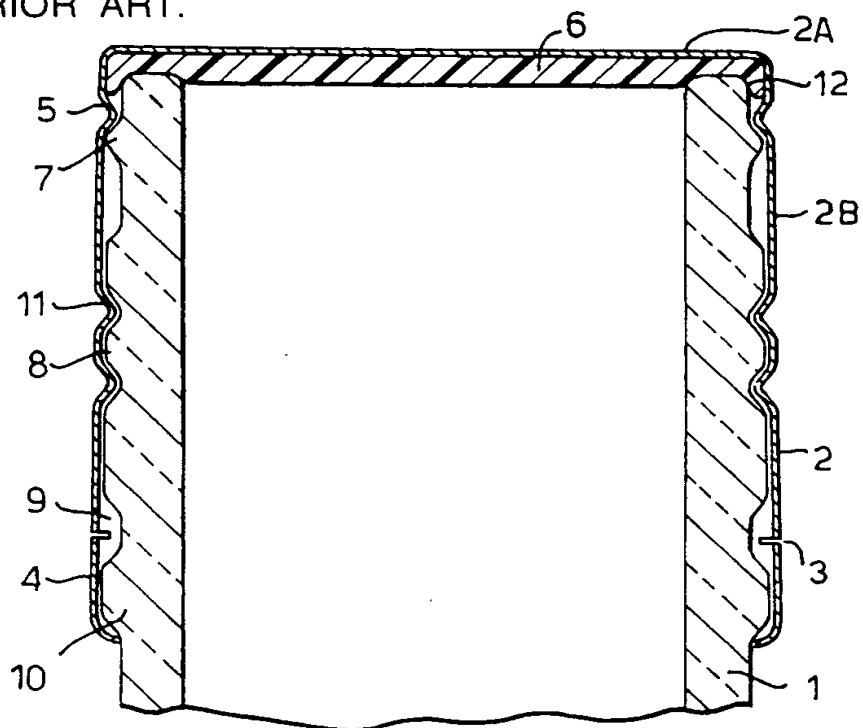


Fig.2.

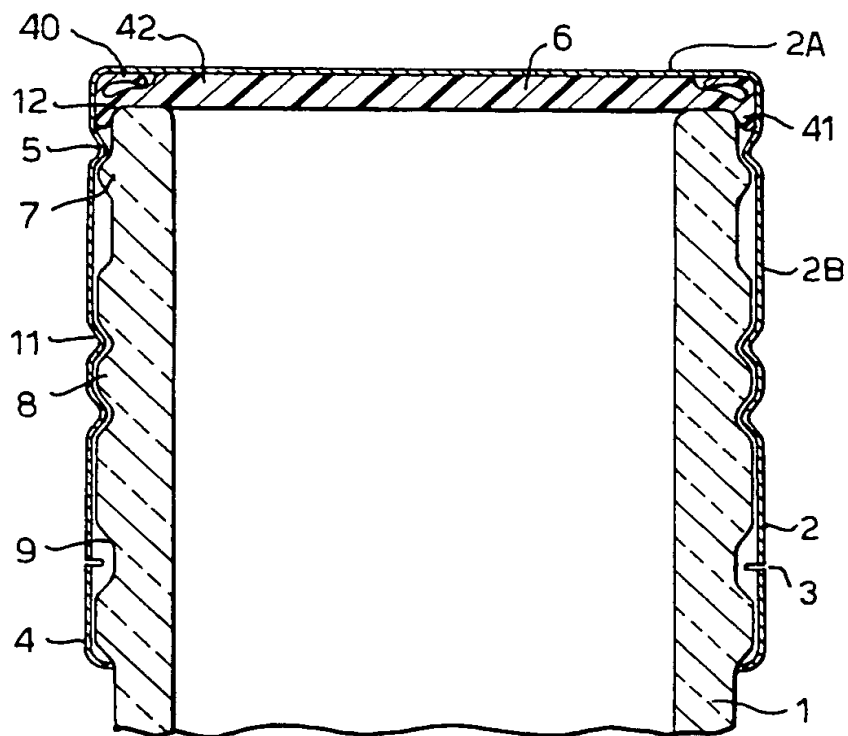


Fig.3. PRIOR ART.

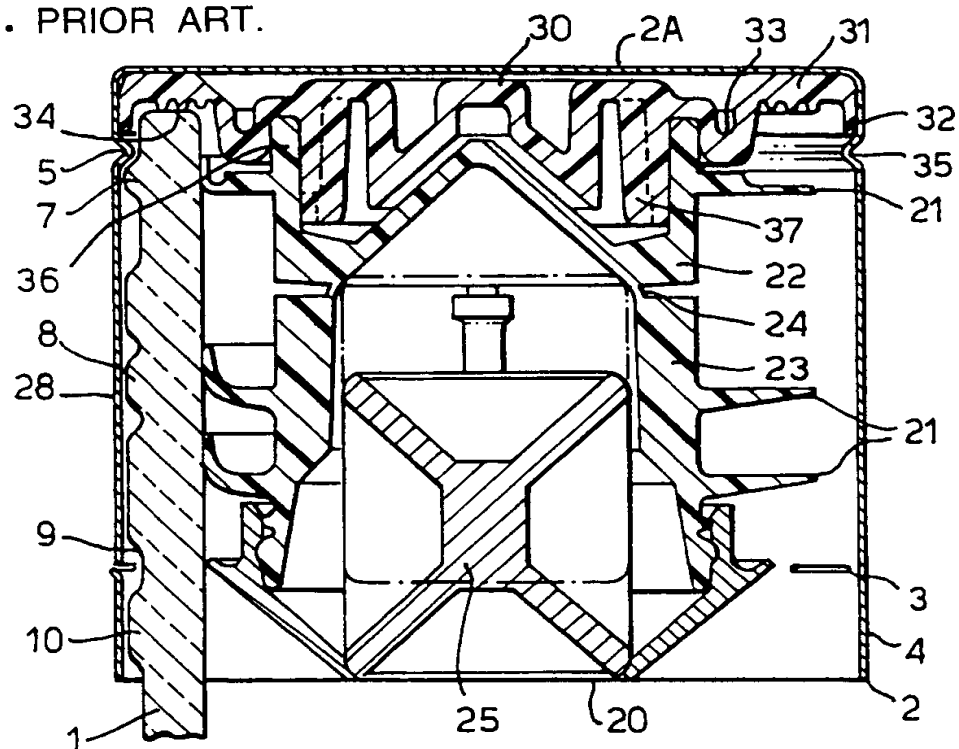


Fig.4.

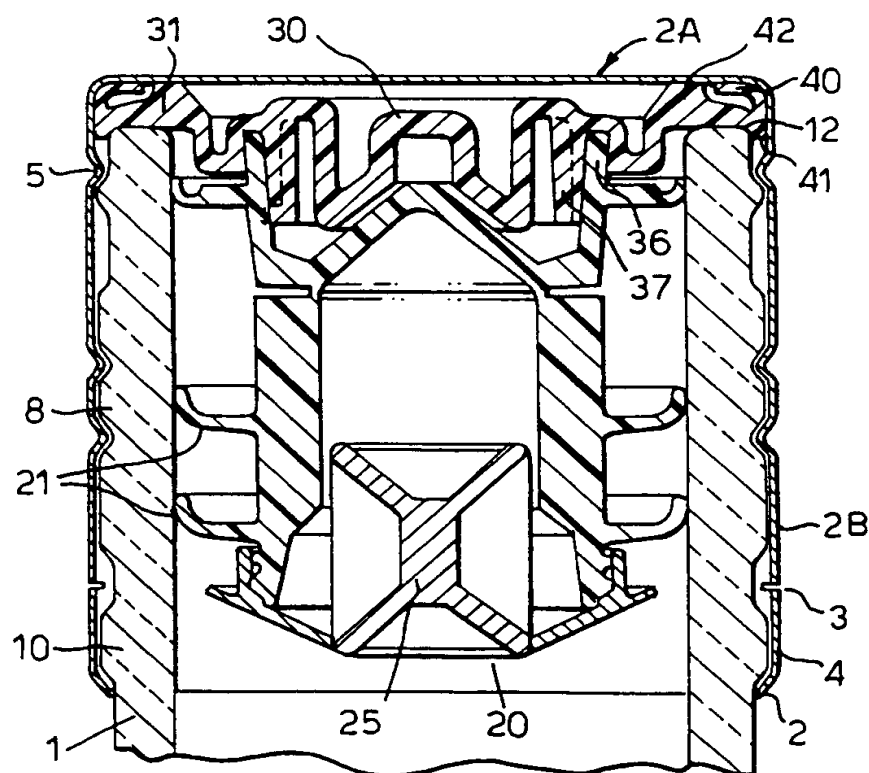


Fig.5.

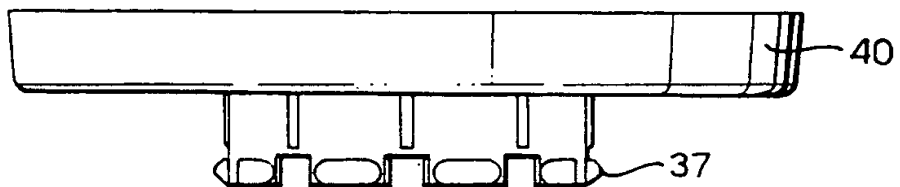


Fig.6.

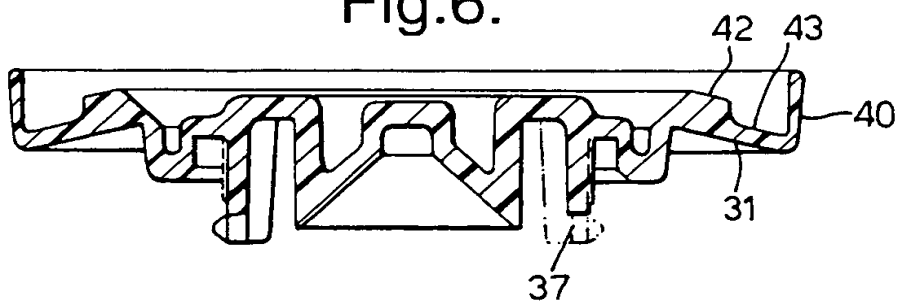


Fig.7A.

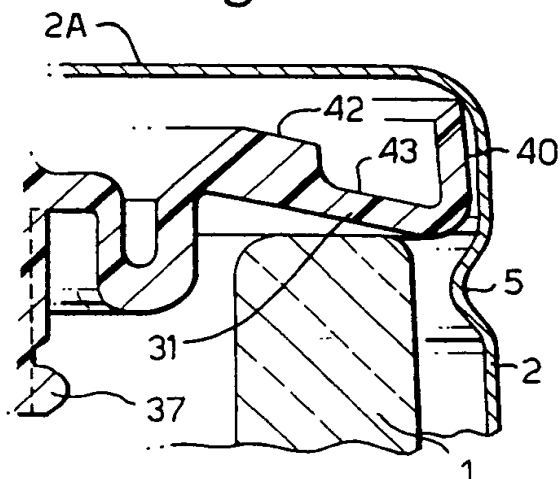


Fig.7B.

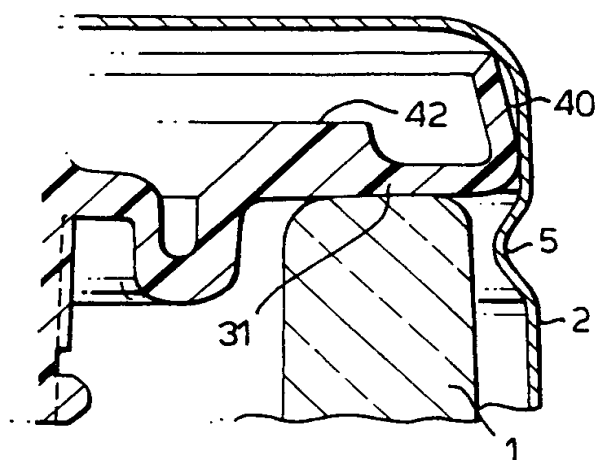


Fig.7C.

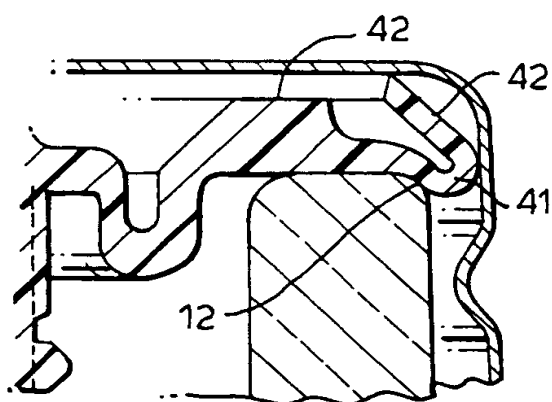
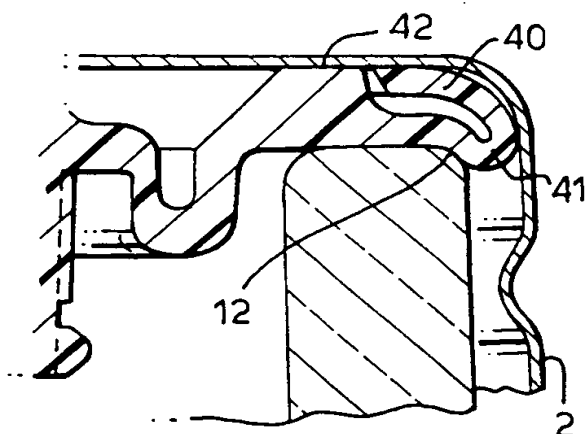


Fig.7D.





# INTERNATIONAL SEARCH REPORT

Int .lional Application No  
PCT/GB 00/00621

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D41/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 1 378 262 A (L.A.C.) 24 February 1965 (1965-02-24) page 1, right-hand column, last paragraph -page 2, left-hand column, paragraph 1 figures 1-3	1,6
A	WO 98 42587 A (METAL BOX PLC ;KERR PETER DOUGLAS (GB); CROWN CORK & SEAL TECH COR) 1 October 1998 (1998-10-01) cited in the application page 5, line 30 -page 6, line 32 figure 1	6
A.	FR 1 197 452 A (SCHULTE, F.) 1 December 1959 (1959-12-01) page 2, right-hand column, paragraph 3 - paragraph 7 figures 1,2	1
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

19 May 2000

Date of mailing of the international search report

30/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3018

Authorized officer

Wennborg, J

BEST AVAILABLE COPY

# INTERNATIONAL SEARCH REPORT

Int lional Application No  
PCT/GB 00/00621

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 710 470 A (WALLER, C. D.) 16 June 1954 (1954-06-16) page 2, line 23 - line 55 figures 1-4	1
A	FR 1 357 217 A (GUINJOAN CASAMITJANA) 3 July 1964 (1964-07-03) page 1, left-hand column, last paragraph -right-hand column, paragraph 1 figures 1,2	1

# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB 00/00621

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1378262 A	24-02-1965	OA 1070 A	07-08-1968
WO 9842587 A	01-10-1998	AU 6413798 A	20-10-1998
FR 1197452 A	01-12-1959	DE 1087035 B	
GB 710470 A		GB 934532 A GB 934533 A	
FR 1357217 A	03-07-1964	NONE	

BEST AVAILABLE COPY